App. F. IX-4

Previous References. (1942-3. War) War File No. 4 - 42.
Serial Nos. 1 & 2.

Later References.

8-9

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. Two only.

Part B for August 1942.

SUBJECT.

Note on Japanese phosphorus incindiary bombs.

J. M. Krishnan
12.8.42.

Japanese
Note on Phosphorus Incendiary Bombs

432
W

General and Revenue Secretariat

War File No. 4 of 1942-3. [App. F. III-2

Serial No. 1

OFFICE OF THE M.E.S.C.R. FOR LAW
AUG 2 1942
No. 1129

CHIEF SECRETARY
31. JUL. 1942
GOVT. OF MYSORE.

From The Secretary to the Hon'ble the Resident
F. 3(27)-42/W dated 30th July 42
forwarding a copy of Note summarising information
about Japanese phosphorus incendiary bombs.

A copy of the Note will be sent
to the ISP & the ARP Controller of KGF, Mysore
Bangalore Bhadravathi which are the Class II & III
Towns in this State for information

RS 31/7

31/7

Secretary

Law Dept
One copy also to S.S.

Secretary

Secretary

Secretary

Sent with a letter to the Concerned Officers.

RS 4/8

2. Issue 74-b & 4th Aug. 42 to the ISP
PS.

ARP Controllers Blore
Mysore
KGF
Bhadravathi

J
B

NOTE—Cont. Sheet.

WD 04155—GPB—65,000—23-10-41

W 4-42-1

No.F.3(27)-42/W.

432/W.

The reply to this communication should be addressed to the Secretary to the Resident in Mysore, Bangalore, by designation and not by name.

FROM

THE SECRETARY
TO THE HON'BLE THE RESIDENT IN MYSORE.

To

The Chief Secretary to the Government of
His Highness the Maharaja of Mysore,
BANGALORE.

CHIEF SECRETARY, 30 JUL 194 GOVT OF

Dated Bangalore, the 30th July *1942.*

Note on Phosphorus Incendiary Bombs.

SIR,

I am directed to forward for information/a copy of a note summarising information which is at present available about Japanese phosphorus incendiary bombs and the appropriate method of dealing with fires caused by them, treatment of phosphorus burns, and methods of training for stirrup pump parties, etc.

I have the honour to be,

Sir,

Your most obedient servant,

*with 9 spare copies.

for SECRETARY TO THE RESIDENT.

W 7-42-2.

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE.

No. 741-6/W. Encl.1 General and Revenue Secretariat,

Dated Bangalore, 4th August *19* 42

FROM

Chief
The Secretary to the Government of His Highness the Maharaja of Mysore.

To I.G.P. S.S. A.R.P. Controller Aircraft
Blon Mysore Bhadravati

SIR,

Note on Phosphorus Incendiary Bombs.

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I have the honour to be,
Sir,
Your most obedient servant,

for

For Chief Secretary to Government.

Note on Phosphorus Incendiary Bombs.

1. Description of bomb: Incendiary bombs now being used by the Japanese are of the 50 Kilo type with incendiary pellets.

The bomb is generally fitted with an instantaneous fuse, and has a H.E. charge which gives a high fragmentation effect, the splinters from the nose cap having a very low trajectory. The pellets, which are composed of sponge rubber impregnated with phosphorus, are scattered widespread, sometimes as far as 50 yards from the point of impact of the bomb.

2. Type of fire produced. The phosphorus pellets burn with a flame 4" to 6" high for 5 to 7 minutes, giving off a thick grey smoke smelling slightly of burning rubber.

Phosphorus produces a less intense heat than magnesium; also the smoke settles on surrounding surfaces forming a glaze which excludes air and thereby retards their ignition. The danger of the incendiary pellet lies in the large numbers contained in one bomb and in the delay which sometimes takes place in ignition. Instead of one large fire there may be several hundred small fires and when all are apparently dealt with, others may break out, making it necessary for the area, in which an incendiary bomb has fallen to be watched for some hours after any fires have been dealt with.

3. Method of extinguishing: Burning phosphorus can easily be extinguished with water or smothered with sand or earth. The simplest method is to sprinkle all the pellets with a little water so as to extinguish them, and then to pick them up with tongs or a shovel - on no account must bare hands be used - and place them in a bucket of water where they may be safely kept until they can be destroyed. This is done by emptying the bucket on a piece of waste ground and leaving the pellets to burn out.

The chief difficulty in dealing with phosphorus is due to its liability to burst into flames as soon as it dries. It is therefore necessary to keep both the pellets and the affected area wet, until the phosphorus can be removed, or to allow the phosphorus to burn while taking proper care against any possible spreading of fire. The smoke produced while burning is poisonous and care should be taken to approach a fire from the windward side; doors and windows in a building should be opened to increase ventilation. In contact with the skin, flaming phosphorus will cause severe burns which are difficult to heal. Personnel approaching the area where a bomb has fallen should not have bare feet. Pellets should not be kicked or trodden on, even if boots are worn.

4. Treatment of burns: If phosphorus lodges on the skin the affected part should be immediately plunged in water, or kept wet by water spray or by covering with a thick pad soaked in water. This not merely extinguishes the flame, but also dissolves away those products of the burning phosphorus which are chiefly responsible for poisoning the burns. These products can be even more quickly neutralized and rendered harmless by washing with a solution of washing soda (two table-spoonfuls in one pint of water), followed by bathing in copper sulphate solution (one or two tea-spoonfuls in one pint of water). The copper sulphate solution covers any phosphorus still adhering to the skin with a harmless and insoluble brown film which keeps the air away from the phosphorus and thus reduces its chances of re-igniting. These solutions, if available, should be applied liberally by sponging for a few moments before beginning to remove the phosphorus. This can be done best by means of forceps, by careful scraping or picking off with a dull knife blade, sponging with a wet gauze pad, or by gentle rubbing with a soft scrubbing brush, the affected part being kept well immersed in water during the whole of the cleansing operation since phosphorus becomes soft at blood heat and melts at a few degrees higher cleansing will be much helped by immersing the contaminated part in warm water.

After scrupulously careful cleansing has removed all trace of phosphorus, the burn or burns should be washed with an antiseptic and treated as an ordinary burn. A most emphatic warning is, however, necessary against the use of any oily or greasy dressings, or ointments, before it is absolutely certain that no trace of phosphorus remains. Phosphorus

dissolves in oils and greases, and the use of such ointments before complete decontamination, therefore, not only affords no protection but is even likely to spread the contamination.

5. Production of Practice bombs: To provide personnel with experience in the handling of phosphorus pellets of the type now used in Japanese incendiary bombs, practice bombs can be made by skilled chemists having proper facilities in accordance with the following data:

Rubber sponge is cut into pellets of about ½" x 1", and the pellets are then stuffed into glass flasks until the latter are full. A solution of Yellow Phosphorus in Carbon Bi-sulphide containing about 50 per cent of Phosphorus is then made and the liquid poured into the flasks containing the rubber pellets. The flasks are then tightly corked and sealed and after a few hours are ready for use. As the mixture is not a very stable one, it is advisable to use these bombs within a few days of making them.

IT CANNOT BE OVER-EMPHASIZED THAT CARBON-BI-SULPHIDE IS AN EXCEEDINGLY DANGEROUS, HIGHLY INFLAMMABLE AND POISONOUS LIQUID AND THAT ITS PROPERTIES ARE GREATLY ACCENTUATED BY THE PHOSPHORUS DISSOLVED IN IT. UNDER NO CIRCUMSTANCES WHATSOEVER SHOULD UNSKILLED PERSONNEL ATTEMPT TO MANUFACTURE THESE BOMBS, SIMPLE THOUGH THE PROCESS MAY APPEAR TO BE. IT IS OF THE FIRST IMPORTANCE THAT MANUFACTURE BE UNDERTAKEN ONLY BY A SKILLED CHEMIST.

To operate the bomb all that is necessary is to throw it about 20 feet in the air so that it falls on hard ground. Generally speaking the pellets will ignite spontaneously but this is not always the case as they may sometimes lie for 10 or 15 minutes before catching fire.

The "Bombs" should not be stored in any place where there is likelihood of fire risk, nor carried about in a car where they are likely to break from jolting.

6. Training of Stirrup Pump Parties: It is most important that Stirrup Pump Parties and fire fighters should have practice in dealing with numerous scattered outbreaks such as are produced by the phosphorus pellet bomb. Speed and above all thoroughness are required. To train men to concentrate with a Stirrup Pump on a practice 1-kilo bomb placed in the middle of a yard will not give them the experience necessary to deal with numerous fires caused by several hundred incendiary pellets. As always, the principle should be inculcated that it is the fire which is the chief danger rather than the incendiary substance itself. Stirrup Pump Parties should be trained to fight fires in enclosed spaces. The method is to set fire to shavings, wooden boxes etc. inside a corrugated iron or brick-built shed constructed for the purpose. The inflammable material should be ignited in several places, and when the building is full of smoke, the trainees should be asked to put the fires out with a Stirrup Pump.

7. Protection of Fire Watchers and Stirrup Pump Parties: In view of the explosive charge present in the Japanese bomb, it is essential that Fire Watchers and Stirrup Pump Parties should in all cases be accommodated under in blast and splinter proof protection. Regular fire patrols, and the posting of Fire Watchers and Stirrup Pump Parties in exposed places, are not allowed. Protected posts for these personnel should be similar in construction to the Keymen's Shelter, illustrated on Sheet No.6 in "A Selection of A.R.P. applied to Factories". Posts should be situated within sight of the major fire risks; they should have observation slits so placed that the occupants have maximum range of vision.

8. To sum up: - Phosphorus is in general not a very effective incendiary agent and can be rendered harmless by dealing with it in the proper way. Do not forget that, while water immediately puts out burning phosphorus, it will re-ignite once it has become dry again. It is also important to deal immediately with skin contaminated by phosphorus by immersion in water, spraying or covering up with a wet pad until the phosphorus can be removed. Affected clothing should be wetted and stripped off.

Never treat phosphorus burns with greasy dressings or ointments unless you are quite certain that no trace of phosphorus remains.

Keep out of the smoke produced by burning phosphorus.

KL/1.7.42
200 copies.-D

Note on Phosphorus Incendiary Bombs.

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2. Type of fire produced. The phosphorus pellets burn with a flame 4" to 6" high for 5 to 7 minutes, giving off a thick grey smoke smelling slightly of burning rubber.

Phosphorus produces a less intense heat than magnesium; also the smoke settles on surrounding surfaces forming a glaze which excludes air and thereby retards their ignition. The danger of the incendiary pellet lies in the large numbers contained in one bomb and in the delay which sometimes takes place in ignition. Instead of one large fire there may be several hundred small fires and when all of are apparently dealt with, others may break out, making it necessary for the area, in which an incendiary bomb has fallen to be watched for some hours after any fires have been dealt with.

3. Method of extinguishing. Burning phosphorus can easily be extinguished with water or smothered with sand or earth. The simplest method is to sprinkle all the pellets with a little water so as to extinguish them, and then to pick them up with tongs or a shovel - on no account must bare hands be used - and place them in a bucket of water where they may be safely kept until they can be destroyed. This is done by emptying the bucket on a piece of waste ground and leaving the pellets to burn out.

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KL/1.7.42
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